POTENTIAL PLACES OF REFUGE: PART ONE – INTRODUCTION

Purpose and Scope

This Potential Places of Refuge (PPOR) section supplements information found elsewhere in the Prince William Sound Subarea Contingency Plan for Oil and Hazardous Substances Spills and Releases, commonly referred to as the Prince William Sound Subarea Contingency Plan (SCP). Information about sensitive areas associated with PPOR may be found in the Sensitive Areas - Section D of the SCP. Information about response strategies to protect sensitive areas and areas of public concern associated with PPOR may be found in the Geographic Response Strategies – Section G of the SCP.

A "place of refuge" is defined as a location where a vessel needing assistance can be temporarily moved to, and where actions can then be taken to stabilize the vessel, protect human life, reduce a hazard to navigation, and/or protect sensitive natural resources and other uses of the area (e.g., subsistence collection of mussels, commercial fishing, recreational boating). A place of refuge may include constructed harbors, ports, natural embayments, potential grounding sites, or offshore waters. This section identifies potential docking, anchoring, mooring, and grounding locations that may be selected as Places of Refuge in the Prince William Sound Subarea. Actual designation of a Place of Refuge will always be an incident-specific decision made by the U.S. Coast Guard Captain of the Port for Prince William Sound.

Prince William Sound (PWS) has many miles of environmentally sensitive coastline. In addition to sensitive shoreline habitats such as marshes, sheltered tidal flats, and exposed tidal flats, PWS supports a number of sensitive biological resources including birds, fish and shellfish, and marine mammals. Additional information about identification of senvistive areas and resources may be found in Section D of the SCP. Additional information about protection of sensitive area may be found in Section G of the SCP.

PWS is managed under a varity of land use management plans including:

Chugach National Forest, Revised Land and Resource Management Plan[1],
Management Plan for State Marine Parks: Prince William Sound and Resurrection Bay[2], and
Prince William Sound Area Plan for State Lands[3].

PWS is also widely used for marine commerce. Oil tanker vessels, log transport ships, fuel barges, freighters, oil industry work boats, ferries, and cruise ships make routine stops at PWS ports. Also, commercial fishing boats, sport fishing charter boats, and privately-owned vessels regularly use local harbors and docks.

There is no perfect docking, mooring, anchoring, or grounding site for all vessels in all situations. Deep draft vessels, such as oil tankers and cruiseships, cannot be taken to certain locations. Some ports may have shallow approaches or small bays, and deep draft ships cannot enter these locations. However, shallow draft vessels, such as fishing vessels and charter vessels, may be able to utilize these shallower ports. For the purposes of this section, vessels have been divided into three categories: deep draft, light draft and shallow draft.

[1] USDA, Forest Service, Alaska Region, Chugach National Forest. May 2002.
[2] Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. March 1995.
[3] Alaska Department of Natural Resources and Alaska Department of Fish and Game. June 1988.

Deep Draft Vessels are vessels that exceed 20,000 Gross Tons. These vessels have drafts of 25 to 60 feet and range in size from 450 to 1,000 feet long. Cruiseships and crude oil tankers are the predominant deep draft vessels operating in Prince William Sound.

Light Draft Vessels are vessels of 300 to 19,999 Gross Tons. These vessels have drafts of up to 25 feet and range in size from 200 to 450 feet in length. Freighters and ferries are the most common light draft vessels operating in Prince William Sound.

Shallow Draft Vessels are less that 300 Gross Tons, generally draw less that 15 feet and are less that 200 feet in length. Fishing vessels, fishing tenders, tour boats, and pleasure craft make up the majority of the shallow draft vessels operating in Prince William Sound.

The information in this section may be used for a vessel of any size that has suffered an incident that creates need for a temporary place of safe refuge, but it is focused on deep draft and light draft size vessels, since there are more potential places of refuge for shallow draft vessels. Some potential places of refuge appropriate only for shallow draft vessels are designated, however many more potential places of refuge for shallow draft vessels exist in PWS.

How the Document Was Developed

This section was developed in 2004 by a Work Group of interested and knowledgeable stakeholders in keeping with the Alaska Regional Response Team's "Guidelines for Places of Refuge Decision-Making," (Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases, Annex O). The Work Group arrived at a consensus on the potential places of refuge and submitted this document to the Subarea Committee for approval and inclusion in the Prince William Sound Subarea Contingency Plan. The Work Group participants represented the following organizations:

Alaska Department of Environmental Conservation,
Alaska Department of Natural Resources,
Alaska Department of Fish and Game,
Alyeska Pipeline Service Company/Ship Escort/Response Vessel System (SERVS),
Chugach Alaska Corporation,
Cook Inlet Regional Citizens' Advisory Council,
Prince William Sound Regional Citizens' Advisory Council,
Prince William Sound Response Planning Group,
Southwest Alaska Pilots Association,
U.S. Coast Guard, District 17,
U.S. Coast Guard, Valdez Marine Safety Office,
U.S. Dept. of Agriculture, Forest Service, Alaska Region, Chugach National Forest,
U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration (NOAA),
U.S. Dept. of the Interior, and
U.S. Environmental Protection Agency (EPA).

The first step of the PPOR process was to identify candidate sites (anchorages, moorings, docks/piers, and potential grounding sites) within the PWS Subarea. The Workgroup began by researching available information to determine major risk factors in the PWS Subarea. Maps were developed, depicting the following risk and logistical information:

Locations of bulk fuel facilities (Figure H-1);
Primary traffic routes for State ferries and cruise ships (Figure H-2);
Primary traffic routes for crude oil tankers (Figure H-3);
Locations of frequent fishing vessel/tramper offload activities (Figure H-4);

Locations of key nearshore fishing grounds, hatcheries and remote release sites (Figure H-5);
Locations of previous major marine spill events (Figure H-6);
Locations of lingering oil from the Exxon Valdez spill in 1989 (Figure H-7); and
Locations of spill response hubs and equipment depots (Figure H-8).

The second step was to identify a total of 66 PPOR within the PWS Subarea. A site assessment matrix (Table H-2) and key (Table H-1) was developed. This matrix consists of identified sites in each row with information about risk factors and site selection criteria in the columns. The information presented for each site includes:

PPOR identification;
Name;
Location;
Maximum vessel size;
Swing room or dock face length;
Bottom type;
Exposure/protection;
Conflicting uses;
Sensitive resources;
Response options;
Distance to population centers; and
Distance to alternate PPOR.

PPOR identifications are alpha-numeric; the beginning letter indicates the type of site, as follows:

Anchorages begin with A,
Docks and piers begin with D,
Potential grounding site begin with G, and
Moorings begin with M.

The number following the beginning letter is a unique site identifier with no importance attached to the magnitude of the number. The locations of potential places of refuge (anchorages, moorings, docks/piers, and potential grounding sites) are shown on Figure H-9.

The site assessment matrix contains potentially suitable emergency anchorage, docking, moorage, and potential grounding locations based on operational factors such as water depth, swing room, exposure/protection, and navigational approach. Sites are grouped by the maximum vessel size category suitable for the site. The PPOR sites identified for shallow draft vessels should only be considered a partial list as there are many suitable sites available in PWS for the shallow draft vessel category (less than 300 gross tons).

Step 3 was to identify specific factors that should be considered as part of the site assessment process. These factors include:

- Distance from population and logistics centers;
- Proximity to environmentally sensitive areas, wildlife resources, threatened or endangered species or habitats, and/or historic properties;
- Uses, such as fisheries, mariculture sites, tourism and recreational use, subsistence use, and the location of public or private facilities;
- Response factors such as booming feasibility and the proximity to existing Geographic Response Strategy (GRS) sites; and
- The distance from the closest alternative PPOR.

Figure H-10 is a composite map of all PPOR and risk factors combined.

How to Use the Potential Places of Refuge Section

The "Guidelines for Places of Refuge Decision-Making" (Annex O of the Unified Plan) will be used for places of refuge decision-making in Prince William Sound. As outlined in the guidelines, when the U.S. Captain of the Port (COTP) receives a request from a vessel master or his/her representative to move a vessel to a place of refuge--or in the event there are no individuals on board the vessel authorized to make the request, or the vessel has been abandoned and the COTP needs to consider moving the vessel to a place of refuge--the COTP will initiate the decision-making process in Appendix 1 of Annex O. As outlined in Steps 2 and 3 in Appendix 1, if the COTP/ Unified Command determines that places of refuge should be considered for an incident-specific response, the information in the PWS PPOR document may be used to provide background information to help expedite the incident-specific place of refuge decision. The steps of the decision-making process are summarized as:

1. Place of refuge assistance requested,
2. Immediate action required by COTP,
3. COTP/Unified Command evaluates vessel options,
4. COTP/Unified Command selects vessel option,
5. COTP/Unified Command evaluates potential places of refuge based on operational criteria,
6. COTP/Unified Command selects potential places of refuge based on operational criteria,
7. Stakeholders provided with places of refuge options,
8. Stakeholders provide ranking of places of refuge options,
9. COTP/Unified Command selects places of refuge, and
10. COTP/Unified Command prepares documentation of decision.

The information provided in this document should help decision-making by providing site-specific information to the COTP/Unified Command.

Part Two of this document contains site-specific information for some of the PPOR in the PWS Subarea. An index map (Figure H-11) at the beginning of this section shows the location of the PPOR maps. Each PPOR map consists of two parts: 1) a map page showing a locator map, picture, and detailed nautical charts; and 2) a table page providing site information and local site conditions.

Who to Contact for Input

Comments and recommendations on these PPOR are welcomed. Please send your comments to either of the following agencies:

Alaska Department of Environmental Conservation
Prevention and Emergency Response Program
555 Cordova Street
Anchorage, AK 99501

United States Coast Guard
Captain of the Port, Prince William Sound
Marine Safety Office (MSO) Valdez
PO Box 486
Valdez AK 99686

POTENTIAL PLACES OF REFUGE: PART TWO – PPOR MAPS

Index of PPOR Maps

The Workgroup developed 16 PPOR Maps within PWS to aid in the site assessment process. These maps are larger in scale, showing a small portion of the Subarea in more detail than the maps in Part One. Figure H-11 provides an overview of the PWS Subarea, identifying the location of each PPOR Map. Each PPOR Map has been assigned an identifying number, which has no relevance other than as a map identifier.

PPOR Maps

Each PPOR Map consists of two parts: 1) a graphic showing a locator map, picture, and detailed nautical charts showing the location of anchorages, docks, moorings, potential grounding sites and other information critical to the selection of a place of refuge; and 2) a series of tables providing site information regarding local site conditions, environmental sensitivities and other considerations.

POTENTIAL PLACES OF REFUGE: PART THREE – REFERENCES

Alaska Dept. of Natural Resources and Alaska Dept. of Fish and Game. June 1988. Prince William Sound Area Plan for State Lands.

Alaska Dept. of Natural Resources, Div. of Parks and Outdoor Recreation. March 1995. Management Plan for State Marine Parks: Prince William Sound and Resurrection Bay.

Alaska Regional Response Team. October 2004. Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases, Annex O, Guidelines for Places of Refuge Decision-Making.

Alyeska Pipeline and Service Company. November 2004. Graphical Resource Database (GRD). A geographic information system environmental database for oil spill contingency planning and response on CD-ROM. POB 109, Valdez, AK 99686.

Dept of Commerce - National Oceanic & Atmospheric Administration (NOAA), National Ocean Survey can provide detailed hydrographic charts of PPOR locations upon request. Contact Dave Neander, Dave.Neander@noaa.gov, (206) 526-6949, NOAA/ORR, 7600 Sand Point Way, NE, Seattle, WA 98115.

International Maritime Organization (IMO). July 17, 2003. Draft Assembly Resolutions Finalized by Nav. 49, Annex 1 Guidelines On Places Of Refuge For Ships In Need of Assistance.

National Wildlife Federation. 2002. Prince William Sound Biological Hot Spots Workshop Report. 750 W. 7th Ave, Ste 200, Anchorage, AK 99501.

Pacific States/British Columbia Task Force. December 2004. Guidelines for Places of Refuge Decision-Making.

U.S Forest Service. May 2004. Chugach National Forest, Revised Land and Resource Management Plan.

U.S. Coast Guard, Marine Safety Office Valdez. March 15, 2004. Prince William Sound Marine Firefighting and Prevention Plan.

Useful Websites

Alaska Dept. of Environmental Conservation, Prince William Sound GRS Information **http://www.state.ak.us/dec/spar/perp/grs/pws/home.htm.**

Alaska Dept. of Natural Resources. Tidelands Mapper, http://www.tidelands.landrecords.info/.

Alaska Dept. of Natural Resources, Prince William Sound Subarea Maps including, general maps, land use and management maps, biologically sensitive area maps, most environmentally sensitive area maps, environmentally sensitive index maps, and geographic response strategies for PWS **http://www.asgdc.state.ak.us/maps/cplans/subareas.html#pws.**

Alaska Regional Response Team, Prince William Sound Subarea Contingency Plan, **http://www.akrrt.org/PWSplan/PWStoc.shtml.**

U.S Bureau of Land Management. Alaska Land Information System, http://www.ak.blm.gov/alis/.

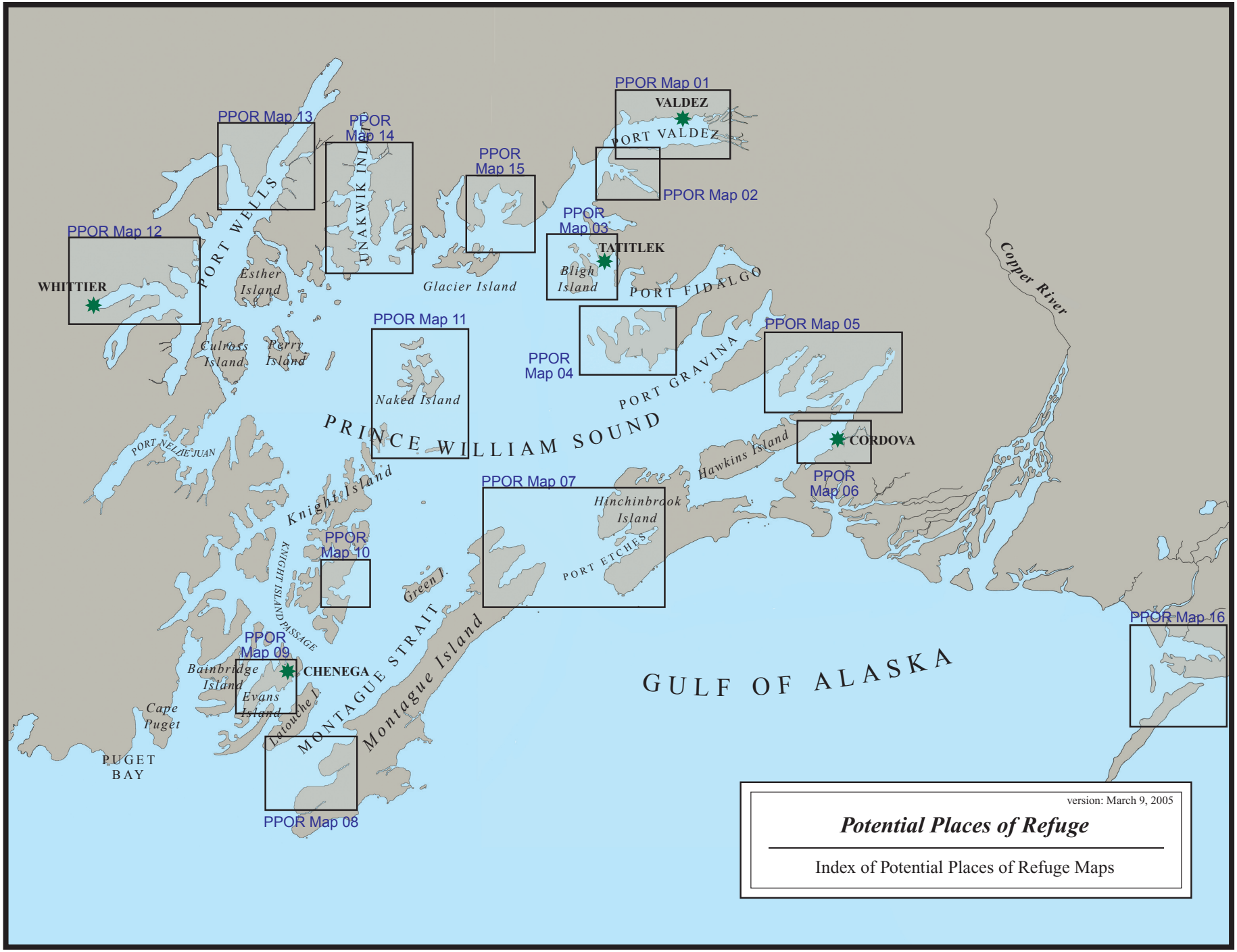

Figure H-11. Index of Prince William Sound Potential Places of Refuge Maps 1 through 16.

Key to the Site Assessment Matrix

Size of Vessels	Swing Room	Bottom Type	Exposure	Conflicting Uses	Ability to Boom/ GRS	Sensitive Resources	Distance to Population Center
D = A deep draft vessel that exceed 20,000 Gross Tons, has drafts of 25-60 ft. and range from 450 ft.- 1000 ft. LOA, typical of Tankers/Cruiseships	Distance measured to nearest shoal waters or hazard	M= Mud	Exposed to winds/seas from the direction noted	CF=Commercial Fishing	B=able to boom the vessel at the location	R=Report Cultural Resources if discovered during operations to FOSC Historic Properties Specialist.	V=Valdez
L = A light draft vessels of 300 to 19,999 Gross Tons, has drafts up to 25 ft., LOA of up to 450 ft., typical of Ferrys/Trampers		R= Rocky		SF=Sport fishing	G= Geographic Response Strategy in the immediate area	I=The segment should be inspected by FOSC Historic Properties Specialist prior to or concurrent with operations.	C=Cordova
S = A shallow draft vessel less than 300 Gross Tons, has a draft less than 15 ft., LOA less than 200 ft., typical of Excursion/Fishing vessels		G= Gravel		AQ= Aquaculture		M=Sensitive Cultural Resources are known to be present and FOSC Historic Properties Specialist monitor should be present during operations.	W=Whittier
		C= Clay		R=Recreational		E= Threatened or Endangered Species present	T=Tatitlik
		S= Sand		C/I=Commercial/ Industrial		H=Highly Sensitive as designated by the PWS GRS Workgroup(see Section G)	Ch=Chenga
		H= Hard		A= Anchorage			
		SH=Shells		S=Subsistence Activities			

Table H-1. Key to codes used in Table H-2.

Site Assessment Matrix

PPOR ID#	Map #	Location Name	Latitude	Longitude	Size of vessels	Available SwingRoom (ft.)/Dock Face	Bottom Type	Exposure to	Conflicting uses	Ability to Boom/GRS	Sensitive Resources	Dist. to Population Center(nm)	Dist. Alt. PPOR (nm)	
Potential Places of Refuge for DEEP DRAFT large vessel exceeding 20,000 Gross Tons														
A03	Map-01	Gold Creek Anchorage	61 07.64	146 27.05	D	1100	M	S,W,E	R,SF,S,AQ	B,G	R	V-2.75	2.7	A04
D06	Map-01	Valdez Container Terminal	61 07.28	146 18.48	D	700		S,W	C/I,AQ	B	R	V-0	0.2	A04
D08	Map-01	Valdez Marine Terminal-#1	61 05.40	146 24.21	D	390		N,W	C/I,AQ	B	R	V-2.75	0.7	M12
D09	Map-01	Valdez Marine Terminal-#3	61 05.39	146 23.04	D	122		N,W	C/I,AQ	B	R	V-0	0.7	M12
D10	Map-01	Valdez Marine Terminal-#4	61 05.33	146 23.74	D	122		N,W	C/I,AQ	B	R	V-0	0.7	M12
D11	Map-01	Valdez Marine Terminal-#5	61 05.40	146 24.22	D	122		N,W	C/I,AQ	B	R	V-0	0.7	M12
A13	Map-02	North Jack Bay Anchorage	61 02.41	146 37.30	D	1200	M	E	S,CF,A,SF,R	B,G	H,I	V-12.5, T-13.7	6.4	A02
A14	Map-02	South Jack Bay Anchorage	61 01.98	146 37.49	D	1800	M	E	S,CF,A,SF,R	B,G	H,I	V-12.5, T-13.7	6.4	A02
A21	Map-04	Knowles Head Anchorage	60 38.85	146 36.75	D	6500	M,C	S,W,E	C/I		R	T-16	13.4	A19
A28	Map-07	Port Etches Anchorage	60 20.59	146 33.84	D	2300	C	E,W	S,CF,R	B,G	H,M	C-49	12.5	A29
A29	Map-07	Zaikof Bay Anchorage	60 19.42	146 57.98	D	5000	M	NE	A,CF,R	B,G	H,I	C-47, CH-43	12.5	A28
M30	Map-07	Port Etches Moorage	60 20 39	146 33.20	D	2300		E,W	S,CF,R	B	H,I	C-49	12.5	A28
A31	Map-08	Macleod Harbor Anchorage	59 52.93	147 47.06	D	1600	M,S	SW	S,A,CF,R	B,G	R	CH-21	19.5	A32
A36	Map-11	North Smith Island Anchorage	60 31.90	147 22.67	D	1900	M	N,E,W	S		R	CH-36,W-44,V-48	7.0	A37
A37	Map-11	Outside Bay Anchorage	60 38.26	147 29.48	D	1750	M	E	CF	B,G	H,R	W-37, V-47,T-31	7.0	A36
A38	Map-11	McPherson Bay Anchorage	60 40.65	147 21.79	D	1750	M	NE	R	B	R	T-24.5,V-41,W-41	9.5	A36
A42	Map-12	Pigot Bay Anchorage	60 50.76	148 22.42	D	1300	M	E	CF,R,AQ	B	I	W-15	10.5	A40
D43	Map-12	Whittier Cruise Ship Dock	60 46.71	148 41.83	D	660		NE	C/I,R,AQ	B	R	W-0	3.2	A41
D44	Map-12	DeLong Pier	60 46.71	148 40.05	D	425		NE	C/I,R,AQ	B	R	W-0	3.0	A41
A47	Map-13	South College Fjord Anchorage	61 03.53	147 56.59	D	1850	M	N,S	A,SF,CF,R	B	M	W-30.5	14	A46
A48	Map-13	North College Fjord Anchorage	61 06.53	147 55.71	D	3200	M	N,S	A,SF,CF,R	B	M	W-33.3	15	A46
Potential Places of Refuge for LIGHT DRAFT medium sized vessel 300 to 19,999 Gross Tons														
A01	Map-01	West Sawmill Spit Anchorage	61 05.39	146 25.79	L	1200	M,G	N,W	R,AQ	B,G	I	V-3.0	0.7	D08
D04	Map-01	Valdez City Dock	61 07.39	146 21.69	L	600		S,W	C/I,SF,AQ	B	R	V-0	0.2	D05
D05	Map-01	SERVS Dock	61 07.39	146 21.45	L	560		S,W	C/I,AQ	B	R	V-0	0.2	A04
D07	Map-01	Valdez Petroleum Terminal	61 07.40	146 21.45	L	200		W	C/I,AQ	B	R	V-0	0.5	A01
M12	Map-01	SERVS Buoys in Port Valdez	61 06.41	146 16.42	L	2000		W	C/I,AQ	B	R	V-2.0	1.4	D07
A15	Map-03	Black Point/Tatitlek Narrows Anchorage	60 54.93	146 45.00	L	1800	H,G	NW	CF,S,R,AQ	B,G	H,I	T-3.7	3.6	D18
A16	Map-03	Boulder Bay/Tatitlek Anchorage	60 51.35	146 40.04	L	1400	M	S	SF,S,R,AQ	B,G	H,R	T-.5	0.8	D18
A19	Map-04	East Two Moon Bay Anchorage	60 45.41	146 32.88	L	1200	M	N	CF.R	B,G	I	T-7.6	8.0	A16
A20	Map-04	West Two Moon Bay Anchorage	60 45.24	146 33.63	L	1300	M	N	CF,R	B,G	I	T-7.6	8.0	A16
A22	Map-05	Sheep Bay Anchorage	60 38.16	146 02.42	L	3600	M	SW	R,S,CF	B,G	I	C-14.5	13.5	A23
A23	Map-05	Nelson Bay Anchorage	60 39.01	145 39.36	L	3000	M	SW	R	B	I	C-6.5	8.0	A24
A24	Map-06	Spike Island Anchorage	60 33.11	145 46.25	L	550	M,S	NE	R, AQ		R	C-.3	0.2	D08
D25	Map-06	Cordova City Dock	60 32.92	145 45.99	L	300		NE	C/I, R,S,AQ	B	R	C-0	0.2	A24
D26	Map-06	Cordova Municipal Dock	60 33.46	145 45.32	L	408		N,W,S	C/I, R,S,AQ	B	R	C-0	0.2	A24
D27	Map-06	Cordova T-Dock	60 32.89	145 46.07	L	263		N,W,S	C/I, R,S,AQ	B	R	C-0	0.2	A24
A32	Map-09	West Sawmill Bay Anchorage	60 03.19	148 03.17	L	875	M,SH,R		CF,R,AQ	B	I	CH-1.4	1.0	D34
A33	Map-09	East Sawmill Bay Anchorage	60 03.50	148 02.23	L	750	M,SH		CF,R,AQ	B	I	CH-1.4	1.5	D34
D34	Map-09	Chenga Ferry/Tramper Dock	60 03.73	148 00.80	L	300		E	C/I, R,CF,AQ	B	R	CH-0	1.0	A32
A35	Map-10	Snug Harbor Anchorage	60 14.77	147 43.30	L	2000	G	E	S	B	R	CH-18.5	16.8	A32
A56	Map-11	Bass Harbor Anchorage	60 37.88	147 24.18	L	500	M	S,SE	CF	B,G	R	CH-42,V-54,W-44,T-40	5.6	A37
A57	Map-11	South Smith Island Anchorage	60 30.98	147 21.84	L	1000	M	W,SW,E	S		R	W-37, V-47,T-31	7.0	A36
M39	Map-11	Outside Bay Moorage	60 38.07	147 28.82	L	1400		W	CF	B,G	H,R	W-37, V-47,T-31	7.0	A36
A41	Map-12	Bush Banks Anchorage	60 48.17	148 35.95	L	1200	M	N,W	R,A	B	R	W-3.2	2.4	A40
D45	Map-12	Whittier Ferry Dock	60 46.61	148 40.45	L	200		NE	C/I,R	B	R	W-0	3.0	A41
A46	Map-13	Barry Arm Anchorage	61 06.56	148 10.35	L	1750	M		R	B	M	W-31.5	14	A47

Table H-2. Site assessment matrix for Potential Places of Refuge in the Prince William Sound Subarea (page 1 of 2).

Prince William Sound Potential Places of Refuge

Site Assessment Matrix

PPOR ID#	Map #	Location Name	Latitude	Longitude	Size of vessels	Available SwingRoom (ft.)/Dock Face	Bottom Type	Exposure to	Conflicting uses	Ability to Boom/GRS	Sensitive Resources	Dist. to Population Center(nm)	Dist. Alt. PPOR (nm)
A49	Map-14	Unakwik Inlet-Siwash Bay Anchorage	60 57.90	147 36.32	L	2000	M	N,S	CF,R,AQ	B	I	W-43.3,V-48.8	20.5 M39
A50	Map-14	North Unakwik Inlet Anchorage	61 00.63	147 31.84	L	650	M	N,S	CF,R,AQ	B	I	W-45.5,V-50.3	23 M39
A51	Map-15	Heather Bay Anchorage	60 59.02	147 00.15	L	1650	M	SE	R,CF	B	R	T-16,V-34	6.5 D52
A53	Map-16	Okalee Channel Anchorage	60 03.36	144 23.92	L	1150	H	W	CF,R	B,G	H,I	C- 62	4.4 A54
A54	Map-16	Kayak Entrance Anchorage	59 59.07	144 24.91	L	2700	H	W	CF,R	B,G	R	C- 64	4.4 A53
An incomplete list of Potential Places of Refuge for SHALLOW DRAFT small sized vessel less than 300 Gross Tons													
A02	Map-01	Anderson Bay Anchorage	61 04.83	146 33.84	S	1200	M	N,E,W	R,AQ	B,G	I	V-6.5	4.0 A01
A17	Map-03	South Bligh Island Anchorage	60 47.68	146 48.46	S	1500	M,S	S,SW,SE	S,AQ	G	M	T-6.6	6.3 A16
D18	Map-03	Tatitlek Ferry Dock	60 51.69	146 41.06	S	513		S	R,S,CF,AQ	B,G	H,R	T-0	0.8 A16
A40	Map-12	Shotgun Cove Anchorage	60 47.76	148 33.01	S	700	M	N	R,A	B	R	W-5.7	2.4 A41
A58	Map-15	Chamberlain Bay Anchorage	60 52.55	147 11.19	S	600	M		R	B		T-19.5, V-32	6.5 A51
An incomplete list of Potential Grounding Sites													
G55	Map-01	Lowe River mud flats	61 05.48	146 16.30	N/A	N/A	M,G	S,W,E	R,SF,S,AQ	B,G	R	V-3.0	1.4 M12
G56	Map-01	Gold Creek	61 07.76	146 28.02	N/A	N/A	S	S,W,E	R,SF,S,AQ	B,G	R	V-2.75	2.7 A04
G57	Map-01	Saw Mill Spit	61 05.13	146 25.89	N/A	N/A	S,G	N,E,W	R,SF,S,C/I,AQ	B,G	I	V-3.0	0.7 A08
G58	Map-01	Old Valdez Town Site	61 06.94	146 16.63	N/A	N/A	M,G	S,W,E	R,C/I,AQ	B,G	I	V-2.25	0.5 M12
G59	Map-02	North Side of Jack Bay	61 02.42	146 35.47	N/A	N/A	S,G	E	S,CF,A,SF,R	B,G	H,I	V-12.5, T-13.7	6.4 A02
G60	Map-03	Sac Bay/North of Galena Bay	60 58.79	146 42.46	N/A	N/A	S,G	E	R,AQ	B	I	V-15,T-9.5	5.4 A13
G61	Map-04	Red Head	60 40.68	146 28.32	N/A	N/A	M,G	S	C/I	B	I	T-20	3.0 A21
G62	Map-11	Outside Bay	60 37.81	147 27.87	N/A	N/A	M.G	W	CF	B,G	H,R	W-37, V-47,T-31	7.0 A36
G63	Map-07	Port Etches	60 19.46	146 34.14	N/A	N/A	S,G	W	S,CF,R	B,G	H,M	C-49	12.5 A29
G65	Map-13	Point Pakenham	61 00.01	148 04.01	N/A	N/A	M,G	S,W,E	A,SF,CF,R		M	W-27.8	5.25 A47
G66	Map-13	Coghill Point	61 03.66	147 55.74	N/A	N/A	M,G	S	A,SF,CF,R	B	M	W-33.3	0.5 A47
G67	Map-12	Head of Passage Canal	60 46.62	148 42.84	N/A	N/A	G	NE	SF,CF,R	B	M	W-0	0.5 D43

Reference: Southwest Alaska Pilots Association, teleconference and coorespondence, June, 2004
Reference: Alaska Department of Environmental Conservation, Prince William Sound Geographic Response Strategies Site Selection Matrix, February 20, 2004
Reference: Geographic Resource Database, Alyeska Pipeline Service Company, Applied Science Associates, SLR Alaska, January 2003
Reference: USCG, Prince William Sound Marine Firefighting and Prevention Plan, Revision 2, March 2004

Table H-2. Site assessment matrix for Potential Places of Refuge in the Prince William Sound Subarea (page 2 of 2).